An Independent Way of Thinking

Dropping a Twin I-beam Ford, Part II

✦ By Ryan Manson ✦

Last month, when we left our '69 Ford project, we had just completed all the fabrication necessary to drop our truck a full 6 inches. The twin I-beam axle setup had been cast aside and a new crossmember, shock towers, boxing plates, and a pair of C-notches had been added to the chassis. The result is a much stiffer front end, thanks to the added boxing plates and beefy front crossmember, that will accept all the modern suspension components one can dream of.

When it came time to select the components for our newly dropped F-100, we opted to go with Fatman's Stage II kit. This kit is based on the specs of the venerable Mustang II IFS with a few concessions added to make it a bit more contemporary, the most important being the elimination of the stock Mustang II strut rod that attached to the lower control arm. Instead, Fatman has designed a lower control arm that straddles the front crossmember for increased stability and packaging. In addition to the upper and lower SAE 1018 steel tubular control arms, the standard Stage II kit comes equipped with coil springs and gas shocks, spindles, and iron disc brakes. We opted to add to the package a power rack-and-pinion as well as 2-inch dropped spindles. Combined with the 3-inch drop that is built into the crossmember and 1-inch drop from the coil springs, that will give us a full 6-inch drop up front, getting our Ford nice and low. A Classic Performance Products (CPP) brake system featuring drilled and slotted rotors was selected as an upgrade, as well as a sway bar to control understeer and body roll.

Installation of the suspension components is pretty straightforward for anyone who has ever worked on an IFS system before, but there are a few things worth pointing out. Fitting the coil springs with the frame bare can be a bit of a challenge, so Fatman ships a pair of shock spacers with every coil spring-equipped IFS kit. These are slipped over the shaft of each shock and rest between the shock body and upper shock tower to mimic proper ride height during the remainder of the build process. Once the drivetrain is installed, the spacers can be removed and the coil springs can be installed easily and safely without the use of a coil spring compressor. Another item that will need to be addressed is the provided 4-inch rack extension that needs to be installed on the Mustang II rack-and-pinion. Due to the wider track width of the Ford trucks than the Mustang II, this is necessary to provide the proper geometry and avoid bumpsteer.

We had the suspension components installed in a day and no sooner had the truck back together up front before we were taking stuff apart out back. We'll continue the story of slamming our F-100 next month when we cover the rearend rebuild followed by the rear suspension mods. But for now, check out what it took to go from a twin I-beam to a trick IFS.

SOURCES

Classic Performance Products
(800) 822-7708
www.classicperform.com

1. The control arms for the Fatman Stage II kit are tubular items fabricated from SAE 1018 steel and feature NASCAR-type screw-in ball joints and polyurethane bushings that are graphite impregnated, which prevents the need for further lubrication.

2. We opted to upgrade to Fatman's Mustang II-based spindles with a 2-inch drop for our Stage II kit.

3. Shocks are over-the-counter gas-type units, shown with the shock spacers that will serve to establish ride height during the build phase of our project. The coil springs on the left are spec'd for the weight of our truck as well as the desired ride height.

4. Fatman offers a number of brake kits, from the basic iron unit to six-piston, 16-inch rotor setups, based on the customer's preference. We opted to go with a name we've come to trust over the years: Classic Performance Products. Their kit includes aluminum hubs in the original 5x5.5-inch bolt pattern (other patterns are also available), matching 11-inch drilled and slotted rotors, loaded calipers, and caliper brackets. Not shown but also provided are the bearings, seals, hoses, hardware, and dust caps.

5. For our big Ford truck, we thought upgrading the stock manual steering box to a power rack-and-pinion would be a smart and comfortable move. Pictured is everything necessary to get the rack-and-pinion system installed, including the C-notches we installed last month and GTech tie-rod ends. Fatman designed their IFS system with a positive caster setting of 3.5-4 degrees for better handling and response. This raises the steering arm on the spindle, which in turn raises the tie rod attached to the rack; the result is bumpsteer. To solve this unwanted situation, Fatman uses GTech tie-rod ends that feature a longer tapered shaft that helps put the correct geometry back into the frontend.

6. To improve our Ford's handling characteristics, we opted to add a sway bar to the install. Fatman control arms come equipped to accept a sway bar, so it seemed like a no-brainer. The purpose of the front sway bar is to control understeer and body roll by connecting the frame to the lower control arms.

7. Here's the passenger side of our Ford chassis, ready to accept the suspension components.

8. The first step is to install the upper and lower control arms. The upper arms are mounted so that the knurled surface of the cross shaft rests against the shock tower. This ensures that the alignment position is maintained.

The lower control arm attaches to the crossmember via a single bolt, washers, and a nyloc nut. The bottom and top pivot nuts should only be tightened ½ turn past the point where the washers can no longer be rotated by hand. Any tighter and excess wear, a harsher ride, and additional noise can result.

9. Here's the shock spacer installed over the shock shaft. Worth noting is the rubber stop that is present just above the spacer on the shock's shaft. This needs to be removed in order for the shock to achieve full travel on most lowered applications.

10. With the shock in place, it's time to bolt in the 2-inch dropped spindle. Note the shock and spacer assembly.

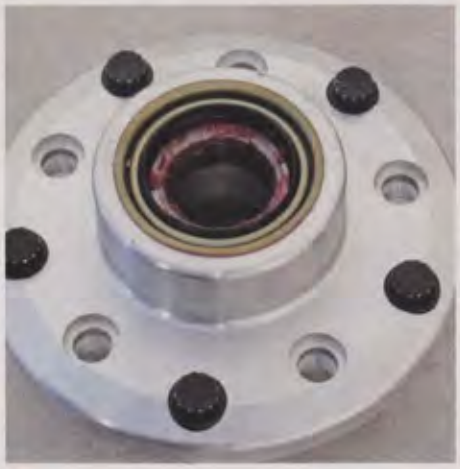
11. The lower ball joint requires the use of a spacer to ensure that the castle nut can be tightened properly and still line up with the cotter pin hole.

12. With the spindle in place, we can now assemble the brake and hub assembly, starting with the caliper bracket. Using the provided ½-inch hardware, the upper anchor is attached to the upper brake boss on the spindle followed by the bracket.

13. Next, the lower spacer is installed, followed by a ⅞-inch fastener that mates the bracket to the spindle. The upper ½-inch fasteners are then torqued to 119 ft-lb while the ⅞-inch lower fastener is snugged down to 78 ft-lb.

14. Before the hub/rotor/caliper assembly is installed, it's a good idea to check for fitment inside the wheel that's to be used, especially if you're using an OEM steel wheel as they can sometimes be problematic since they were designed for drum brake applications.

15. Here's the aluminum hub, inner and outer bearings, and seal. Note the dual bolt pattern on the hub, we're using the Ford 5x5.5-inch pattern, but CPP provides the option of using the same hub for a 5x5-inch pattern as well.



16. Once the inner bearing is packed with high-temp grease, it can be installed on the hub, followed by the seal. A wooden 2x4, a mallet, and a little care makes quick work of driving the seal in place.

17. With the hub slid onto the spindle and the outer bearing and washer in place, the spindle nut needs to be tightened to no more than 12 ft-lb to ensure that the bearings are seated.

18. With the spindle nut tightened, the hub is spun and the nut rechecked for tension. If it's still tight, the bearings are properly seated and the tension on the nut relieved.

19. The nut is then hand tightened and the nut cage and cotter pin installed. A wrench is not needed for final spindle nut adjustment!

20. The next step is to install the rotors and calipers. I've had disc brake setups squeal in the past, so now I tend to err on the side of caution, liberally applying a thin coat of anti-seize to the brake pads where they contact the caliper pucks. This prevents that nasty squeal that oftentimes is the result of the pads vibrating or oscillating against the caliper and/or puck when the brakes are applied.

21. The rotor is installed by simply sliding it over the hub, followed by the brake caliper (bleeder screw at the top), which attaches to the caliper bracket we installed earlier. These calipers are of the "floating" type; the mounting hardware attaches to the caliper bracket and the caliper is free to float side to side ever so slightly, aiding in proper alignment with the rotor and preventing any shimming from being necessary. The caliper mounting bolts will be torqued to 35 ft-lb.

22, 23. With the spindle dust cap installed as well as the brake hose, our suspension setup is looking good.

24. Our Ford truck features a track width that is approximately 60 ½-inches, hub-to-hub. Since the standard Mustang II rack is 57-inches, Fatman provides a 4-inch rack extension that needs to be installed. This is necessary since simply adding longer tie-rod ends would disrupt the IFS geometry, causing bumpsteer. The first step is to remove the rubber insulator boot from the rack.

25. This exposes the inner tie-rod end, which needs to be removed. The inner tie-rod end is right-hand thread and is usually held together with some sort of mega-Loctite, requiring a big wrench to get it loose. If you can't get it loose, ask a few buddies to come by to check it out. One of them will not leave until they prove their manhood by removing it, doing the job for you!

26. The process is then reversed using the provided 4-inch rack extension spacer and a few dabs of Loctite.

27. The original inner tie rod socket is then installed onto the rack extension, held in place ad infinitum via Loctite and a jam nut installed on the rack extension.

28. The rubber insulator boot is reinstalled to protect the internals of the rack and it's time to bolt the unit into place.

29. With the rack in place, it's time to hook up the outer tie-rod ends to the spindles. I typically set up a new frontend with ⅛-inch toe in, which is what I'm doing here.

Bumpsteer:
An uncommanded toe change caused by suspension travel.

30. The last piece of the puzzle is to install the sway bar. First, the bar is installed, attached to each lower control arm via the sway bar endlink. Which, in our case, is a long fastener and a handful of rubber bushings.

31. Next, the sway bar is pulled up against the bottom of the frame and the saddle strap mounting holes are marked and drilled.

32. With everything fastened down, our Fatman IFS setup is ready to roll, pun intended!